Installing Touch Tracker Controllers

Installation Kit (0351-0474-01):

Description	Qty.	Part No.
Mdlr cable assy, RJ45	1	6003-0047-01
Screw, M2.9x9.5	1	5899-0004-102
Anchor, 4-8x.750	2	2880-0083-01
Screw, #8x1	2	2816-7634-44
Conn, 1x5pos	1	2109-0254-04
Lug, 22-16AWG	3	2141-0002
Cable, 3-cond	5m	6002-0024-01
Interconnect box	1	0300-1000-01

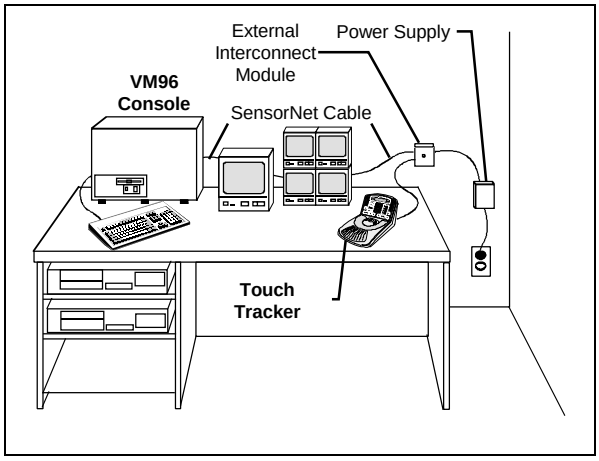
WARNING—RISK OF ELECTRIC SHOCK!

Disconnect AC power to the VM96 System and External Interconnect Module before starting to install this equipment. Failure to do so could shock you and may damage the VM96 system or attached devices.

CAUTION—ELECTROSTATIC SENSITIVE DEVICE!

Follow proper handling procedures to prevent component failure.

Figure 1. Attachment Concept



Planning the Touch Tracker Network

The VM96 system supports a maximum of 8 Touch Tracker controllers (controller). Controllers can attach in a variety of configurations, but must follow all SensorNet configuration and termination rules.

- A network link's maximum length is 1350m (4430').
- Each network link supports up to 32 devices and up to 4 network branches.
- Devices at each end point on a network link must be terminated. Each network link supports up to 4 terminated devices.
- The VM96 console provides 4 SensorNet links. SensorNet J-Boxes provide additional links.
- Each Touch Tracker controller attaches to the network via an External Interconnect Module (EIM), which provides the controller with power and network termination.

See the **Backbone** and **Star Network Guidelines** on the following page to determine the appropriate network configuration for the controllers on your system.

Backbone Network Guidelines

The backbone network topology uses a single cable that passes through each EIM, as shown in Figures 2 and 3.

In Figure 2, the EIMs at each end of the backbone must be terminated. All other interconnect points, including the console, are unterminated. In Figure 3, the console and the last EIM are terminated. All other interconnect points are unterminated.

Figure 2. Backbone Network Example #1

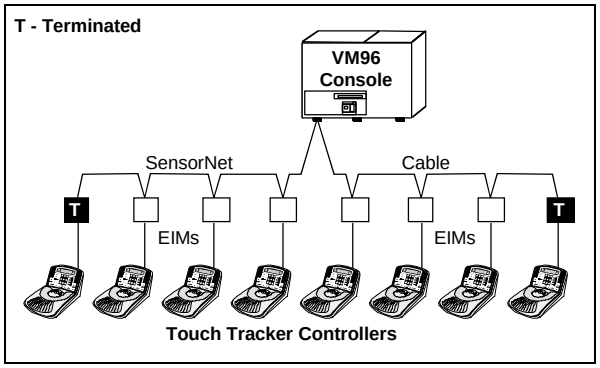
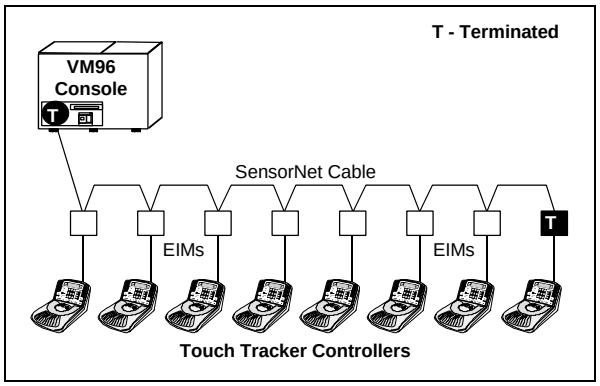


Figure 3. Backbone Network Example #2



Daisy chain wiring, which uses separate cable segments between devices, is not recommended for attaching Touch Trackers. Any break in the chain could make all Touch Trackers inoperable or inaccessible from the VM96 system.

Star Network Guidelines

The star network topology has legs running from a hub (central connection) to the attached EIMs. The console, a J-Box, or one of the domes or EIMs can serve as the wiring point or "hub" for the star configurations, as shown in Figures 3-17 and 3-18.

- Each network link supports one star network, with up to 32 devices. VM96 supports up to 8 Touch Tracker controllers.
- Only one hub is allowed for each star network.
- A network hub supports a maximum of four legs.
- The device at the hub is always unterminated.
- A star network leg can attach unterminated daisy-chained devices; however, the device at the end of each leg must be terminated.

In Figure 4 the EIMs at the end of each leg must be terminated; other EIMs are unterminated. Since the console is the hub in this configuration, it is unterminated. In Figure 5, the second EIM attached to the console is the hub, and it is **not** terminated. The VM96 console, and the EIMs at the end of each leg; must be terminated. Other EIMs are daisy-chained and unterminated.

Figure 4. Star Network Example #1

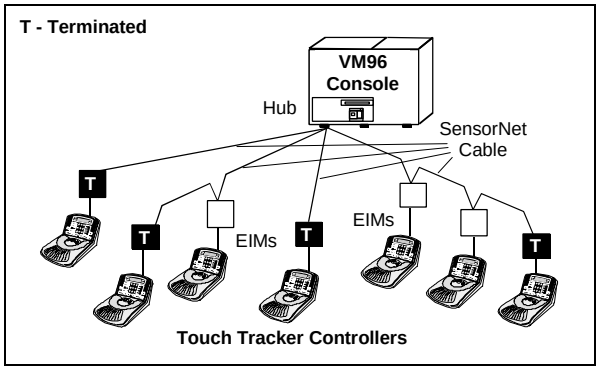
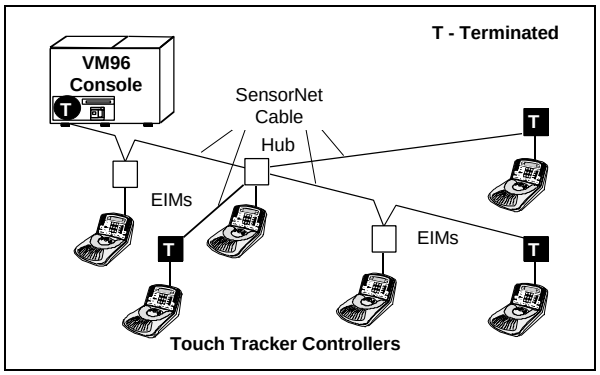


Figure 5. Star Network Example #2



Connecting Touch Tracker Controllers

1. Review the network design to determine which Touch Tracker controllers (controller) must be terminated. Set jumper E1 on EIMs requiring termination (Figure 6).
2. Mount each EIM on a wall or other surface within 3m (10') of its attached controller. Then route a twisted-pair SensorNet cable from the VM96 console, past each EIM, until the last EIM is reached. Do not cut the cable at each EIM.
3. Referring to Figures 6 through 8:
   a. Wire each EIM's power supply leads to pins 2, 3, and 4 of a 5-pin compression connector (one connector per EIM). Tighten the fastening screws to secure the wires.
   b. Strip 25mm (1") of outer insulation from the SensorNet cable at each EIM location. Then strip 12mm (.5") of insulation from each wire.
   c. Bend the two wires in the middle of the stripped area. Insert one wire into pin 1, and the other into pin 5 of the EIM's 5-pin compression connector. Tighten both fastening screws to secure the wires.
   d. After attaching power and SensorNet cables, plug the wired 5-pin connector into each EIM's WAG005 connector. See Figure 6.
   e. Connect the EIM SensorNet cable to the SensorNet card or preceding SensorNet device. Then connect the cable between the last EIM and the next SensorNet device.
   f. Plug the modular interconnect cable into the RJ45 connector on the back of the Touch Tracker controller. Use the strain relief, if available. Plug the other end into the EIM.

Touch Tracker Controllers manufactured before late-1996 do not have a strain relief.

4. Plug the EIM power supply or transformer into a grounded, 3-wire electrical outlet.

   If the controller keypad and backlighting do not illuminate when power is applied, repeat steps 3 and 4. Disconnect the controllers from the EIMs after this test is completed. They will be connected later, one at a time.

5. Proceed to the next section to set up the controller under VM96 Version 4.

Figure 6. EIM Board Layout

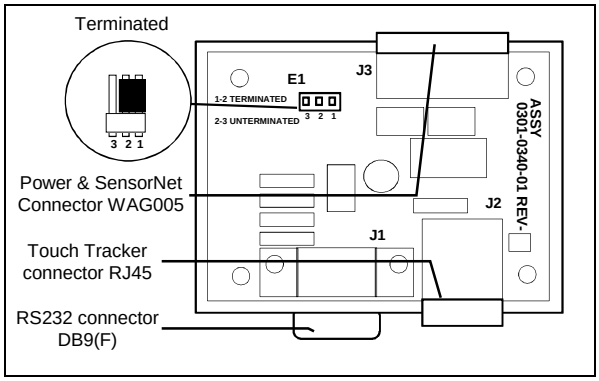


Figure 7. Connecting 1 Controller

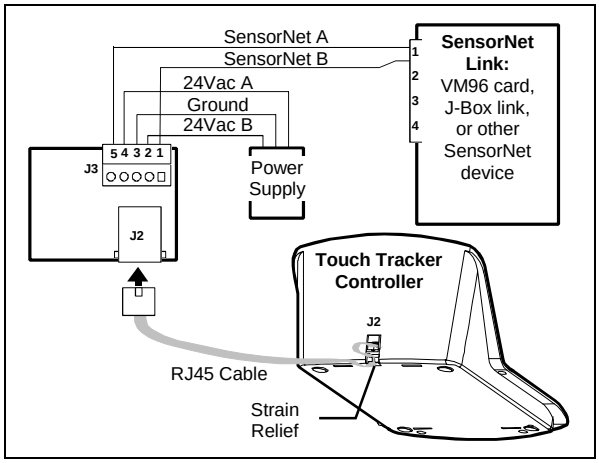
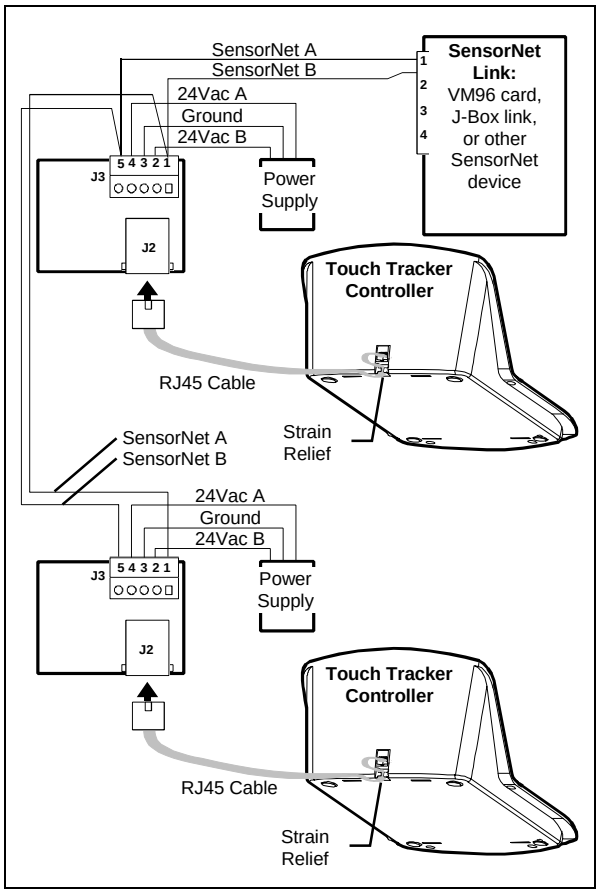


Figure 8. Connecting Multiple Controllers



Installing Touch Trackers Under VM96 Version 4

This section is organized as follows:

- Installing new Touch Trackers under VM96 v4.
- Upgrading Touch Trackers Installed under a Prior Version of VM96.
- Placing a v4 Touch Tracker into local mode.

With VM96 v4, camera domes attaching via SensorNet will use SensorNet addresses 1-96. To avoid addressing conflicts, Touch Tracker controllers which previously used SensorNet addresses 1-8 will use addresses 254-247, respectively. The LCD display continues to show address 1-8.

The next section discusses installing new Touch Trackers under VM96 v4.

Installing New Touch Trackers Under VM96 v4

Use this procedure when attaching new Touch Tracker controllers **for the first time**.

Attach One Touch Tracker

1. Start the VM96 console.
2. Attach the first controller. After going through its startup sequence, the controller displays the following LCD message:

```
Sensormatic
Touch Tracker v4
```

3. After a few moments, the LCD displays:

```
Cam                A1
Mon                __
```

The controller may cycle several times with an **r** in the upper right-hand section of the LCD. An **A** indicates the address was accepted.

Press Clear Entry if the controller stalls with a **TTR** message at the bottom of the LCD screen or if there is no text visible.

If you see ***1** in the address area, another device is assigned to address 1. Assign the previously-installed device to another address and repeat steps 1-3.

Continue with the following section to calibrate the tracker ball.

Calibrating the Tracker Ball

No calibration values are saved unless you complete entire calibration sequence. If you exit prematurely, the Touch Tracker controller will retain its prior settings.

1. Press 0, Menu, and 9 on the Touch Tracker to begin the calibration operation.
2. The following instructions will appear on the LCD display, one line at a time. Press the tracker ball as far as it will go in the stated direction and hold it until the next message appears. Release the ball before moving it to the next position.

```
Press Ball Right
Press Ball Left
Press Ball Down
Press Ball Up
```

3. Release the ball when the **Release Ball** message appears.
4. Press Clear Entry to finish the calibration.
5. Press Clear Entry again to return to Camera Control mode.

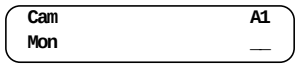
Attaching Another Touch Tracker

You must assign each controller to a different address. Otherwise, you will see an *****, followed by a number in the LCD display's address area.

1. Press 0, then Menu to select **Utility Mode** on the Touch Tracker just installed.
2. Press 2 to set the link address.
3. Enter an address other than 1. This frees up address 1 for installing the next controller. Be sure to assign a different address to each controller.
4. The controller displays **Checking Address Availability**. If accepted, **Address Granted/Press Clear** appears.
5. Press Clear Entry **twice**, to go to **Camera Control Mode**.
6. The controller displays the following LCD message **(#** is the new address–near the right edge of the screen):

```
Cam                A#
Mon                __
```

7. Attach another Touch Tracker controller. After startup, the controller displays the following LCD message (address near the center of the screen).



8. Continue with **Calibrating the Tracker Ball**, on the preceding page.

Upgrading Touch Trackers Installed under a Prior Version

Use this procedure to **upgrade Touch Tracker controllers installed under VM96 v3 to a v4 system**. You may do this because you want to use the I/O Module or SensorNet domes, which were not supported on earlier versions.

To avoid addressing conflicts, connect SensorNet domes after upgrading Touch Tracker controllers.

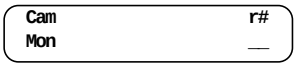
Work with one Touch Tracker at a time.

Checking the Touch Tracker Version

Before performing the upgrade, you must first determine which Touch Tracker version you are using. Older Touch Trackers require downloading. Newer Touch Trackers are capable of operating in version 3 or version 4 mode.

1. Plug in the Touch Tracker without the VM96 console powered up.
2. Determine if Touch Tracker starts in remote mode.

   The Touch Tracker is in remote mode if it looks like the following:



   Continue with **Setting Up Version 4.x Touch Trackers**.

   If the Touch Tracker does not start in remote mode, continue with **Downloading the Touch Tracker**.

The version of the Touch Tracker may also be determined by selecting option 5 from the VM96 Utility menu.

If the version number is **0701-0030-0403**, continue with **Setting Up Version 4.x Touch Trackers**.

If the version number is **0701-0030-0315** or **0701-0030-0317**, continue with **Downloading the Touch Tracker**.

Downloading the Touch Tracker

1. From the VM96 Administrator menu, press **Alt+U** to select the Utilities pull-down menu. Then select **Network Maintenance**. A device selection dialog box appears.
2. Move the cursor to select **Touch Tracker 3.0** and press **ENTER**.
3. Type a Touch Tracker's previously-assigned device number (1-8) into the device number field and press **ENTER**. The system responds with a message that it does not recognize the device. It then selects the **Force Download EE function**.
4. Press **Alt+P** and then **R** to begin the download.

   The Touch Tracker resets following the download. The operation is complete when you see the following LCD message (**#** is the new address–near the right edge of the screen):

The controller may cycle several times with an r in the upper right-hand section of the LCD. An **A** indicates the address was accepted.

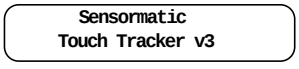
Press

if the controller stalls with a **TTR** message at the bottom of the LCD screen.

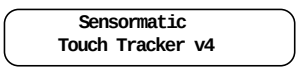
5. Calibrate the tracker ball, following the procedures on the preceding page.
6. Repeat steps 1-5 for all attached Touch Tracker controllers.

Setting Up Version 4.x Touch Trackers

1. Hold down the 4 button on the Touch Tracker prior to plugging in the unit.
2. Plug in the RJ-45 connection on the back of the Touch Tracker while continuing to press the 4 button.
3. Continue to hold the 4 button while the unit goes through its power-up sequence.
4. The Touch Tracker momentarily displays:



   Then all lights flash on the Touch Tracker, and the LCD displays:



Continue with **Calibrating the Tracker Ball** on page 4.

Placing a Touch Tracker into Local Mode

Before you can access the Touch Tracker utility menu, the Touch Tracker controller must be in local mode. Under v4, the controller goes into remote mode when it is powered on and a SensorNet scan signal is not present. The following message appears on the LCD:

```
Cam                r#
Mon                __
```

Perform the following steps to place a v4 controller in local mode:

1. Unplug the RJ45 connector on the back of the unit to reset the controller.
2. Re-attach the connector. During the first five seconds, repeatedly press the **A** button (to the left of the LCD screen), until you hear the unit click.
3. Press Clear Entry when you see **`---X-->TTR`** on the LCD screen. The controller is in local mode when you see the following LCD message (# is the unit's address):

   ```
   Cam                *#
   Mon                __
   ```

   You can now access the Touch Tracker utility menu.

If you see the following message (# is the device address), after startup of a v4 Touch Tracker that is locally-attached to an operational VM96, an error is indicated.

```
Cam                r#
Mon                __
```

The error could be caused by incorrect wiring or incorrect device termination. It may also occur if the VM96 system is not operating or the SensorNet Communications Controller board has failed.

Installing Touch Trackers Under VM96 Version 3

This section is included because:

- The procedure differs from Version 4, discussed above.
- Some installations will install additional Touch Trackers, although they will not be upgrading to Version 4.

Setting Up Version 3.x Touch Trackers

1. Hold down the 3 button on the Touch Tracker prior to plugging in the unit.
2. Plug in the RJ-45 connection on the back of the Touch Tracker while continuing to press the 3 button.
3. Continue to hold the 3 button while the unit goes through its power-up sequence.
4. The Touch Tracker momentarily displays:

   ```
   Sensormatic
   Touch Tracker v4
   ```

   Then all lights flash on the Touch Tracker, and the LCD displays:

   ```
   Sensormatic
   Touch Tracker v3
   ```

Continue with **Calibrating the Tracker Ball** and **Attaching Another Touch Tracker** on page 4.

Installing a Controller into a Workstation (v3 Only)

You will be working with the VM96 system keyboard during the following activities.

1. Press **ENTER**.
2. Press **Alt+c** to invoke the **Configure** menu.
3. Press **w** to select the **Workstations** option.
4. Using the down arrow, move to the **Device** field. If you have at least one device configured, proceed to the next step. Otherwise, go to step 7.
5. Press **Alt+f** to bring up the **Form** menu.
6. Press **a** to select the **Add Row** option.
7. Select Touch Tracker at the Device field and press **ENTER**.
8. Type the controller's **address** at the Num field and press **ENTER**.
9. Repeat steps 5 through 8 for each controller being added to the system, or press **Alt+x**, followed by **ENTER** to exit the controller installation procedure.

Using the VM96 and Touch Tracker Controller Utilities

See Chapter 21 of the **VM96 System Administrators Manual** (8000-0756-04) for guidance on using the VM96 Utilities.

See Chapter 6 of the **VM96 Operators Manual** (8000-0848-04) for guidance on using the Touch Tracker Utilities.

Installing a Remote Touch Tracker

VM96 supports communication with a remotely-located Touch Tracker using RS232 communications. A local Touch Tracker must be dedicated while the remote unit is in use. The two Touch Trackers connect through the RS232 ports on their respective EIMs. Using modems allows the distance to be extended, and supports communications over voice-grade leased or switched lines.

When attaching with a modem, use a conventional modem cable and DB25 to DB9 converter, if required.

Wire	EIM #1	EIM #2
1	Pin 2-Tx	Pin 3-Rx
2	Pin 3-Rx.....	Pin 2-Tx
3	Ground.....	Ground